Auto-DAN

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Quarterly Publish of the Auto-DAN Project

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Project General Information

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Call (part) identifier	H2020-LC-SC3-EE-2020-1
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Coordinator	IES R&D [IESR&D]
Partners	Technological University Dublin [TU Dublin] Rina Consulting SPA [RINA-C] ARCELIK A.S. [ARCELIK] Fundacion CARTIF [CARTIF] Msemicon Teoranta [MSEMICON] CIVIESCO SRL [CIVIESCO] FlairBit SRL [FLAIRBIT] O Cualann Cohousing Alliance Company Limited by Guarantee [OCUALANN] Universidad de Burgos [ubu] Schneider Electric SPA [SE] Delta Ecopolis – Societa Cooperativa [DETLA ECOPC]
Website	https://www.autodan-project.eu/

Disclaimer

Executive summary

The present confidential deliverable D6.3 – Quarterly Publish of the Auto-DAN Project provides project stakeholders and interested parties with an update of the current and ongoing project activities. This deliverable is not in the traditional report style for the Auto-DAN project, including only the newsletter itself, which is also being published on the Auto-DAN website and can be found here. This newsletter will be updated quarterly for the duration of the project.

A Word From the Coordinator (Ian Pyburn, IES R&D)

Welcome to the first edition of the Auto-DAN project newsletter. We are excited to share this initial update with you for the project. To find out more please be sure to express interest on the Auto-DAN website as well as following the project on Twitter and LinkedIn.

Energy performance of buildings generally does not include consumption from appliances, and devices that are not part of technical building systems (e.g. heating, ventilation). Currently the designed energy performance of buildings and appliances is improving dramatically, therefore it would be worth gaining an accurate understanding of their actual, real-life energy performance of the products within the building. Furthermore, access to data on the actual energy performance and energy consumption is essential to help users making informed choices, both in terms of investment and in terms of usage and maintenance.

Therefore, there is a need to advance the way actual energy performance and consumption is assessed and measured. Auto-DAN will produce a cost-effective technological solution for the self-assessment of actual energy performance of buildings and the products which use energy in buildings.

The Auto-DAN project will exploit the evolution of IoT and emerging technologies to capture data and create solutions that will enable the self-optimisation of the building's energy consumption. Auto-DAN will create an augmented intelligence (AuI) solution that will deliver assistive automation in buildings (of any size) and put the occupant firmly at the proactive centre of the building performance. Finally, Auto-DAN will also produce a new dynamic (and continuous) self-assessment methodology that takes into account the actual energy performance of a building, the quality and operation of appliances/ systems installed, user operational habits and the smart readiness indicator (SRI) of a building.

Auto-DAN at a Glance

48 Month Duration
Oct 2020 – Sep 2024

12 Distinct Work Packages

12 Project Members from Ireland, Spain, Italy & Turkey

Project Budget of €5.6 million

Project Timeline

The Auto-DAN Approach

The Auto-DAN project aims to enable homes and small businesses across the EU to optimize their energy consumption and provide an assessment of the live energy performance of a building which takes into account the quality of appliances/ systems installed, user operational habits and the smart readiness of a building. The solution is rooted in augmented intelligence which will focus on the assistive role automation will have in buildings, emphasizing the fact that cognitive technology is designed to enhance human intelligence rather than replace it and that the occupant is a proactive component of the building. Augmented Intelligence enhances a self-optimisation solution as it is a mix of automated controls with user interaction which will maximise the savings of a building in operation. To enable this step-change, the Auto-DAN project will deliver a trebled-structured project framework that evaluates the actual energy performance of EU buildings and provide building users with the awareness to proactively optimize their energy use.

Project Objectives

The Auto-DAN project seeks to fulfil five primary objectives as follows:

Objective 1: Create a flexible smart hardware infrastructure that can be applied to all small-to-medium buildings.

Objective 2: Develop an interoperable software architecture that can provide all the analytical capabilities needed to self-assess and self-optimise buildings in the EU

Objective 3: Deliver Augmented Intelligence (AuI) solutions to enable building & their users to become self-optimising.

Objective 4: Create a live self-energy assessment method that incorporates operational monitoring, appliance/system performance and smart capabilities that will improve the accuracy of current energy assessment procedures

Objective 5: Accelerate investment in sustainable energy by EU countries (3rd Parties) & their clients.

Demonstration Sites

Six different demonstration sites located across 3 different countries will be used to validate the Auto-DAN platform. These sites are as follows:

O Cualann Cohousing Alliance
20 A-Rated Homes
Dublin, Ireland

Greenogue & Aerodrome Business Park
Commercial Buildings
Dublin, Ireland

Delta Ecopolis
Multi Unit Residential Building
Milan, Italy

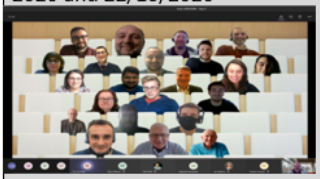
Palazzo Terragni
Public Building
Lissone, Italy

Residencia Camino de Santiago
Student Residence
Burgos, Spain

VideBURGOS Foundation
Social Housing Building
Burgos, Spain

Events

Online Project Kick Off Meeting took place between 19/10/ 2020 and 22/10/2020



The Auto-DAN 6 Month General Assembly online meeting took place in March 2021.

- The project team are currently organising a joint workjshop as part of the Energy Days initiative. Stay tuned for details.
- The project team are looking forward to our next General Assembly in September 2020.

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This project has received funding from the European Union's Horizon 2020 Programme under Grant Agreement no 101000169

A Word From the Coordinator (Niall Byrne, IES R&D)

Welcome to the second edition of the Auto-DAN project newsletter. With the project about to enter it's second year it is timely to look back over the first 12 months of the project and review what has been achieved. Although the Covid-19 pandemic has had an impact on the way we work and collaborate, each member of the project team has worked tirelessly to ensure that the restrictions on travel and gatherings have not had a major impact on the project schedule. I would like to recognize and commend our entire consortium on their hard work and flexibility in this regard. With restrictions lifting we can look forward to meeting in person again soon!

Over the first year of the project we have focused primarily on establishing the hardware solutions that will be used in the demonstration sites as part of the Auto-DAN platform. These technologies will perform a central role in the Auto-DAN platform by enabling the team to monitor the energy performance of the demonstration sites in real time, communicating to the software solutions and facilitating the implementation of the Auto-DAN services.

Over the next three months of the project we look forward to participating in EU Sustainable Energy Week through an Energy Days event in conjunction with our sister project, SATO. The event, titled "AI2 for Self-Assessment of Building Energy Performance" will take place on October 20th and will contribute towards the co-design of the project's Augmented Intelligence dashboards. In addition, we look forward to the ongoing work towards developing our implementation plan for the hardware solutions in the demonstration sites, as well as the commencement of work towards the development of the Digital Twins and the Self-Energy Assessment Methodology, which are two critical components of the Auto-DAN platform.

Please enjoy the content of our second project newsletter and be sure to follow us on our Twitter and LinkedIn page for regular project updates as well as registering your interest in the project on the Auto-DAN website.

Let's Meet the Project Partners!

Starting from this month we are going to introduce you to the different project partners who are working on the Auto-DAN Project. In this first of the series we will introduce **Susana Mª Gutiérrez Caballero**, who is a researcher from **CARTIF (ES).**

How did you come to know about the opportunity to join Auto-DAN Project's Consortium?

Well, we have been involved in multiple projects in which IES was involved too (also as coordinator) so, as they know about our know-how, they contact us to try to involve CARTIF in the proposal from the very beginning.

Why did you decide to join the Auto-DAN project's consortium?

We decided to participate to this consortium because all objectives were aligned with our energy division goals and competences, so we thought it was a great opportunity.

In your opinion, what are the most interesting innovations and future impacts of the Auto-DAN project?

From one side, and focusing on our current activities in the project, I think that having a partner and a group of partners focused on monitoring all the interoperability issues to be taken into account between the different Auto-DAN developments is a very good point and a very good way of trying to have an Auto-DAN solution as interoperable as possible. We are working a lot in this sense, trying to provide the partners with a lot of information about known and applicable ontologies or data models, applicable standard and so on. On the other side, looking at the project from a more general point of view, the activities focused on trying to incorporate SRI concept to the energy assessment framework are very innovative and interesting, and thinking about an automated and dynamic energy performance assessment is quite interesting too. Providing building users with the awareness to proactively optimize their energy use is a very important goal too.

Is it the first time working for a H2020 research project? If no, was your previous experience useful for the development of Auto-DAN?

We have already worked in other H2020 projects, so we are used to this type of research efforts and we know how to deal with the complexity of these activities (such as deadlines, reports etc.). In particular, I think that the previous experiences helped us to understand that, beyond our personal work, the activities concerning dissemination and the transmission of the created value are very important.

Which is the contribution that your company/institute provides within the Auto-DAN project?

At the moment, our main role is to be responsible for the interoperability and the management of the meetings on this topic. In particular, our objective is to engage all the partners and build their awareness about all the elements of the system and the importance of their interaction to reach a comprehensive and integrated final result. In the scope of the interoperability meetings, it has been decided to also address security issues, so... we are on it. In this sense, as privacy represents one of the greatest barriers to the expansion of the smart home market, it is important to address the topic from the very beginning. In addition, as Cartif has a lot of experience on self-energy assessment, we are the energy assessment supervisor for Spanish demo-sites, so we will help University of Burgos to develop all the activities linked to energy assessment.

In Focus: O'Cualann Cohousing Alliance – 20 Domestic A-Rated Houses in Ballymun, Ireland.

The Auto-DAN project aims to help building occupants and users make informed decisions that will lead them to optimize their energy consumption. In this direction, a reliable metering of electricity (e.g. including home appliances) is crucial to provide relevant feedbacks and encourage users' behavioral change towards more energy-efficient habits. Today, a reliable metering of households' appliances is still a challenge, as most existing systems only allow very rigid estimates. The Auto-DAN project is going to address this challenge by implementing its system in 20 residential buildings in Ballymun, Dublin (Ireland), aiming at providing an innovative, open and accessible monitoring and feedback platform.

The chosen demonstration site is a property of O'Cualann, a housing cooperative handling 11 sets of residential buildings in Dublin, aiming to spread accessible and sustainable integrated home communities. These are newly constructed energy class A residential homes, built with high standard materials and provided with highly efficient appliances. Moreover, these buildings are provided with solar photovoltaic panels, demand-controlled ventilation systems and air to air heat pumps as heating generators.

Despite their potential and theorical high energy efficiency, the energy bills of these buildings are much higher than expected. Their efficiency potential is most probably not realized due to operational habits concerning the various energy end-uses (e.g. HVAC settings, appliances use). In fact, buildings efficiency potential can only be realized if a conscious and adequate building operation is put in place by building operators, which in residential buildings are, normally, tenants and owners.

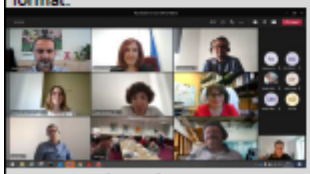
Building users often lack a proper knowledge of their home appliances, especially when technologies are new and the impact of their usage is not easily understandable due to a lack of transparency of usage data or the absence of on-site smart meters.
With the goal of creating open and accessible monitoring devices, developing a better understanding of occupant electricity consumption and thus more efficient behaviors, Auto-DAN is going to address these challenges by installing the following technologies:

- **MSEMICON IoT Smart Meter**: a smart sensor that will directly and uncomplicatedly detect and report electricity consumption, capable of identifying energy loads through disaggregation;
- **Home Energy Management Solution**: a physical device for real-time building local controls as well as the implementation of demand response actions;
- **Smart Plugs for Operational Profiling of appliances**: smart plugs that turn conventional electrical appliances into smart appliances, capable of monitoring and, to some extent, controlling the electric consumption;
- **UI/UX Dashboards**: a visual interface able to communicate energy optimization tips and feedback to the users;
- **Traffic Light Appliance Devices**: traffic light devices to incentivize end users not to use appliances during inefficient hours.

This case study will help demonstrate how the Auto-DAN solution is able to improve energy efficiency in homes at a rate of 2.4% per year and how it can be replicable to EU households of the future!

Events

The Auto-DAN M12 GA took place on 29/09/2021 in a hybrid/in-person format.



On 20/10/2021, we are teaming up with SATO Project on a joint workshop as part of the EU Sustainable Energy Week. Titled "AI2 for Self-Assessment of Building Energy Performance", the event will propose solutions based on augmented and artificial intelligence to optimize & assess the live energy performance of buildings

FlairBIT are promoting the Auto-DAN project at the IoThings Milan 2021 in September 2021. Be sure to catch project partner Luca Bixio's presentation titled "AI in four examples: not only theory but also practice" at this exciting virtual event.

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This project has received funding from the European Union's Horizon 2020 Programme under Grant Agreement no 101000169

A Word From the Coordinator (Niall Byrne, IES R&D)

Thank you for your interest in the Auto-DAN project and for taking the time to read the third edition of the Auto-DAN newsletter. With the development of the project's hardware strategy approaching completion it is an exciting time for the project partners as we begin to plan and design the installation of the sensors and meters in the demonstration sites.

Over the past three months there have been several discussions and conversations to ensure that the metering strategy in place is fit for purpose and can satisfy the needs of the five different Auto-DAN services, while also being as unobtrusive as possible. As we continue this progress the application of our tools in real buildings is uncovering exciting functionalities and synergies that will empower building owners and occupants to improve their energy consumption. We look forward to visiting each of the demonstration sites in person over the coming months to engage with the occupants and show them the benefits of the Auto-DAN platform on their building's performance.

Concurrently with the implementation of the hardware solutions, our software infrastructure related Work Packages have all commenced in earnest, with research and development into demand response algorithms, digital twins, AuI dashboards and the live audit all currently in progress. User Experience workshops are planned over the next three months to specifically define the requirements for the user dashboards that are central to engaging the building occupants in energy efficiency measures.

Please enjoy the content of our third project newsletter and be sure to follow us on our Twitter and LinkedIn page for regular project updates as well as registering your interest in the project on the Auto-DAN website.

Let's Meet the Project Partners!

Continuing with the introduction of our project partners from the last newsletter we are happy to introduce you to **mSEMICON TEORANTA**, who are based in Dublin, Ireland. The company are centrally involved in the development of the hardware infrastructure and, more specifically the Smart IoT Electricity Meter and a Gas Boiler Status meter that will be used in several of the demonstration sites.

How did you come to know about the opportunity to join Auto-DAN Project's Consortium?

As a product development company specializing in power electronics mSemicon has been involved in the development of several energy-efficient products over the years, in lighting, motor drives, and in the HVAC sector. This has led to the company being invited to join a number of national energy-related funded research projects, especially ones focused on increasing the penetration of renewables into the overall energy mix in Ireland. mSemicon has therefore made many industry and university contacts over the years. It was one of these who kindly introduced Auto-DAN to mSemicon.

Why did you decide to join the Auto-DAN project's consortium?

Auto-DAN clearly had a need for the development of specific hardware solutions. This aligned with mSemicon's experience in IoT, product development generally, and of course it was in the area of energy too, so it made sense for mSemicon to participate. It represented an opportunity for mSemicon to develop new hardware solutions for ultimate presentation to the market, and have them field trialed at the same time. In addition to this, Auto-DAN represented an opportunity to make new contacts all over Europe, as well as enter the Horizon R&D funding mechanism.

In your opinion, what are the most interesting innovations and future impacts of the Auto-DAN project?

Auto-DAN will focus not only on domestic buildings like houses and apartments, but also on industrial ones. In mSemicon's experience, from the perspective of a small business operating from a typical building in a large industrial park, we find that the application of energy-related building regulations tends not to focus so much on our bland and architecturally plain structures, but rather on homes and larger office buildings. This is understandable, of course. However, it means that many standard industrial buildings, which might have been conceived originally as warehouses, can be quite cold in winter, leading to a very inefficient use of energy for heating. As part of Auto-DAN, we will begin to look at how energy is really used in these buildings, of which there are so many around Europe, and hopefully discover methods in which we can use less of it. We also expect to learn about the energy performance of some of the industrial processes that take place in some of these buildings. More generally, for all types of structures, the application of detailed individual building modelling and monitoring concepts, which is central to the Auto-DAN approach, opens up the potential for real reductions in energy requirements across the board. Auto-DAN will be able to identify where these savings can be made, and suggest how to implement them.

Is it the first time working for a H2020 research project? If no, was your previous experience useful for the development of Auto-DAN?

Yes, this is first time that mSemicon has participated in a H2020 project. We find the collaboration with our partners in Spain, Italy and Turkey, as well as those close to us in Ireland, to be quite engaging and enjoyable. We sincerely hope that the Covid situation will ease to the extent that we will be able to meet our partners at some point in the near future.

Which is the contribution that your company/institute provides within the Auto-DAN project?

mSemicon is making two specific contributions. The first of these is the development of an innovative electricity monitor that will report energy consumption in very short intervals as well as contribute to identifying the loads that are connected at any particular time. The second major contribution is in the area of coordinating the pilot site trials at Greenogue Business Park, Dublin, one of Ireland's largest multi-occupant multi-activity industrial estates.

In Focus: Delta Ecopolis – 15 Targeted Apartments & 2 Offices in Milan, Italy.

The main Auto-DAN challenge is to make the building occupants informed and aware of their decisions in order to optimize energy consumption and to improve their quality of life. Today, most existing systems only allow for very rigid estimates of households' appliances energy use profiles, so the development of reliable metering methods and instruments represents a great challenge. In this direction, the development of a complete and advanced monitoring and evaluation technology solution for home appliances energy efficiency is crucial. The Auto-DAN project is going to address this challenge by implementing its system in 15 targeted apartments & 2 offices from Delta Ecopolis Cooperative in Milan (Italy).

The chosen demonstration site consists of three separate buildings, built between 1968 and 1971, sharing a single thermal plant. The system serves 32 apartments and 2 offices. The demonstration buildings undergone several renovations over the years; between 2012 and 2013 the facades have been redone and had received external wall insulation, while in 2017 the thermal plant was substituted.

This latest renovation has led to the installation of 3 condensing boilers with 150Kw cascade management and three heat pumps for the production of domestic hot water, with three 1000L tanks each. For what concern the emission terminals in all the accommodations, they are radiators with thermostatic valves and heat distributors, monitored by a Brunata system. The monitoring system collects all data coming from both single radiators and single flats, along with a thermometer placed in each apartment.

While managing the energy consumption monitoring, the current configuration does not allow the occupants to have a good understanding of how much energy its appliances are using and at which times.

In order to address this challenge by providing relevant feedbacks and encourage users' behavioral change towards more energy-efficient habits, the Auto-DAN Project will provide an innovative energy management solution consisting of the following:

- Thermal Energy Storage
- Systems BRUNATA
- Monitoring System
- Ventilation Systems
- Automatic LED Lighting.

This solution will also allow occupants to observe the efficiency of the renovation works performed and evaluate their effectiveness in view of promoting their replication (via a similar approach/intervention) in other buildings managed by Delta Ecopolis.

The active participation of Delta Ecopolis end-users is also a top priority, as they will play a key role by being directly involved in designing and implementing the auto-DAN system within their homes.

The Auto-DAN solution will provide a unique opportunity not only to reduce tenants' energy bills and other energy costs for Delta Ecopolis, but also to increase the overall knowledge of building occupants, as well as to assess other energy retrofit opportunities of the involved building and to enhance the replication potential of the Auto-DAN solutions.

Events

On 20/10/2021, Auto-DAN, in partnership with our sister project SATO, participated in a Sustainable Energy Week event as part of the Energy Days initiative. If you missed the event and would like to catch up on the conversations the event can be viewed at the following link:
https://vimeo.com/638688100/977e0877a4

Happy New Year! Feliz Año Nuevo!
Buon Anno! Mutlu Yıllar!

All of us on the Auto-DAN project team would like to wish you a very Happy and Prosperous New Year and looking forward to sharing the project successes while also having you participate on the project in 2022.

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This project has received funding from the European Union's Horizon 2020 Programme under Grant Agreement no 101000169

A Word From the Coordinator (Niall Byrne, IES R&D)

March 2022 marks a very important time in the project as we reach the end of the first reporting period of Auto-DAN. It is a good time to pause and look back at everything we have achieved over the first 18 months of the project, despite the unforeseen challengesand risks we encountered arising from the Covid-19 pandemic. The efforts of all partners of the consortium over the preceding period and the resiliency and adaptability they have shown in continuing to make progress on the project is commendable.

At this point in the project we are preparing the final specification of our hardware and metering strategy for implementation in the demonstration sites. In support of this, several conversations as well as some important site visits have taken place over the last number of months. With this process approaching completion, the focus now turns to the development of the project's software infrastructure. Initial efforts on this have focused on addressing potential issues relating to interoperability between the different software solutions that will contribute towards developing the Auto-DAN software platform. In support of this, we have adopted the BRICK data model for use in the project while also discussing the communication protocols that will communicate across each component of the software platform. These important discussion and decisions are key in informing the design and implementation of the Auto-DAN platform, providing key connections between the Digital Twin Platform, the SelfAssessment Methodology and the Augmented Intelligence Dashboards.

In this issue of the Auto-DAN project newsletter we will introduce you to another of our project partners, CiviESCo while also presenting one of our demonstration sites, the historic Palazzo Terragni in Lissone, Italy. I hope you enjoy the newsletter and thank you for your interest in the Auto-DAN project.

Let's Meet the Project Partners!

We are delighted to introduce you to Alessandra Cassisi and Simone Buffa who are representing **CiviESCo** in the Auto-DAN project. Based in Italy, the company are centrally involved in the development of the business and exploitation plans for the technologies arising through the project as well as acting as a pilot partner on behalf of the Palazzo Terragni demonstration site.

How did you come to know about the opportunity to join Auto-DAN Project's Consortium?

AC: CiviESCo used to collaborate with IES for R&D&I projects as the respective experiences, knowledge and positioning into the market are complementary. CiviESCo is growing as Energy Service Company as well as a financial advisor for energy efficiencyoperations and is very interested in testing the tech solutions developed by IES into research projects. When IES presented to CiviESCo the opportunity of collaborating for the development of the Auto-DAN Project, CiviESCo immediately started to look for an ideal demonstration that could allow IES and all partners of Auto-DAN to test the respective tech solutions as well as allowing CiviESCo to design an ad hoc business model for the retrofit operation of a historic building, finally identifying Palazzo Terragni in Lissone.

Why did you decide to join the Auto-DAN project's consortium?

AC: CiviESCo decided to join IES in the definition of the project Auto-DAN since the first phase of the proposal preparation as the project was perfectly in line with the objectives that the company was pursuing for applied research in the area of energy efficiency and financialengineering. CiviESCo, within the project definition, gave a strong accent to the importance of the business model construction and of the contractual framework definition, especially for R&D&I initiatives, where new techs are developed for being introduced into the market.

In your opinion, what are the most interesting innovations and future impacts of the Auto-DAN project?

SB: From my point of view, both the Auto-DAN hardware and interoperable software are advanced solutions that are going beyond the state of the art. However, what I found really innovative for this sector is the augmented intelligence approach combining artificial intelligence with human knowledge and intuition. This will be mainly applied in the self-energy assessment framework that will provide a "live" Audit: here it is required that the user proactively interacts through the Auto-DAN dashboard, understand how his HVAC system and other appliances works and try to maximise their efficiency or set up their schedule to save money. This is something that usually is done in large tertiary buildings by high-qualified energy managers but not in small and medium-size buildings where Building Management Systems are almost absent. Auto-DAN will show how it is possible to provide an important contribution to the energy efficiency of the building stock via digitalization and end-user engagement. This is a solution that is less visible than classic envelope refurbishment but probably it has a faster implementation and can speed up the renovationwave that is becoming a priority considering also the energy and climate crises we are facing nowadays.

Is it the first time working for a H2020 research project? If no, was your previous experience useful for the development ofAuto-DAN?

SB: No, I've been working on H2020 research projects for the past 7 years in the field of advanced control strategies for the Fifth Generation of District Heating and Cooling systems. As the new project manager of Auto-DAN for CiviESCo, I'm bringing the expertise acquired in the digitalization of the building sector and in grid-interactive buildings having a complete view from the technical conceptualization to the practical implementation in our demo case.

Which is the contribution that your company/Institute provides within the Auto-DAN project?

SB: CiviESCo is providing contributions mainly to two aspects of this project. Firstly, as demo partner, we are in charge ofdemonstrating the non-invasiveness of the Auto-DAN technologies in Palazzo Terragni. This is a historical building located in Lissone that is an example of Italian rationalist architecture thus subject to the law for architectural heritage protection. The goal is to make this building a reference case study of how historic buildings can increase their energy efficiency thanks to digital technologies. Secondly, CiviESCo is coordinating the activities in the Work Package dealing with Exploitation, Business Models and Replication of the Auto-DAN technology. Here our main contribution will be in identifying the route to market for the Auto-DAN products and services investigating all the aspects of the value chain for the business model development with also dedicated interviews and workshops.

In Focus: Palazzo Terragni – Historic Public Building in Lissone, Italy

The Auto-DAN project focuses on live energy performance of buildings; its objective is to assess and optimize buildings energy consumption, analyzing the quality of appliances and systems installed, user operational habits and the smart readiness of a building. To enable this, the Auto-DAN project has implemented an advanced monitoring and evaluation system in six main use cases to ensure that Auto-DAN solution meets the needs of some representative of the wider EU building sector. Palazzo Terragni, in Lissone (Italy) is one of the demonstration sites selected through CIVIESCO to achieve its goals.Palazzo Terragni is a historic building in Lissone, built between 1938 and 1940, initially as the Casa del Fascio (a public recreational space) and later as the Casa del Popolo. The building is a remarkable example of rationalist architecture designed by the architect Giuseppe Terragni.

Today the Palazzo is used by the Municipality, owner since 1968, which has carried out restoration works to host art exhibitions and theatre performances. The building is now used as the Municipal Art Gallery for art events, conferences and for theatre performances. The theatre hall holds about 300 seats arranged between stalls and gallery, a bar, a cloakroom for spectators, toilets and dressing rooms for artists. On the first floor there is a room for art exhibitions and the *Missaglia* room for meetings.

The museum currently has a renovation strategy in place. Energy systems already existing in Palazzo Lissone consist of the following:

- Automated Control Systems
- Onsite Heating and Mechanical System
- Solar PV Systems.

The current energy system does not allow the building managers to have a good understanding of the building consumption in terms of both quantity and timing.

Moreover, the building operation in terms of HVAC systems and appliances is crucial for the poor energy efficiency of the building. The Auto-DAN project is going to face this challenge by observing and analyzing the building energy use with the aim of providing relevant guidance and technical infrastructures towards a more efficient operation. To achieve this goal. Auto-DAN will provide the building monitoring equipment and several technologies to optimize the final energy uses.

A further interesting aspect concerns the auditorium that during events have a high occupancy rate at certain times; in this context, periods of high occupancy will be considered in the scheduling of the building systems, by implementing a smart calendar.

This demonstration site, being an historic building, will highlight the applicability of the Auto-DAN solution to heritage buildings across Europe together with its non-invasiveness while adopting a strategy that will suit them, showing this potential also to citizens (as this property is a public building).

Auto-DAN project will allow to test, verify and demonstrate its solutions by synchronizing them with the particular characteristics of this demo site, but also to develop and integrate self-optimization and self-assessment capabilities for a better and more energy-efficient environment.

Events

The Auto-DAN consortium are delighted to finally our first in person General Assembly meeting to be held in Dublin on March 30th and 31st. Please be sure to follow our social media outlets to stay up to date with the outcomes of this important meeting.

Did you miss our online workshop with our sister project SATO. If so you can catch up at the link below: https://vimeo.com/638688100/977e0877a4

Please be sure to visit the Auto-DAN website to stay up to date with developments from the project.

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